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Title : Seismic arigun sounds recorded on moored hydrophones in the mid-Atlantic and eastern tropical Pacific Oceans

Category : Conservation

Student : Not Applicable

Preferred Format : Poster Presentation

Abstract : Sounds of seismic airguns were detected in two years of data collected from large, remote areas near the Mid-Atlantic Ridge (MAR) and in the eastern tropical Pacific (ETP). From February 1999-February 2001, six autonomous hydrophones were moored near the MAR between 15-35° N and 33-50° W, and six more were moored in the ETP between 8 - 8° S and 95-110° W. Continuous acoustic data recovered from both arrays were scanned for sounds associated with seismic airgun activity via an automatic detection algorithm designed to identify repetitive sounds in the 20-60 Hz band. Airgun impulses occurred every 10-20 s and were recorded frequently on all hydrophones. Atlantic airgun activity peaked near 100% of hours examined in the summer months; Pacific seasonal trends were less obvious. Because of the high source level of the airgun signals it was possible to estimate the locations of ships conducting seismic surveys despite their great distance, often over 3,000 km from our array. In the Atlantic, we located seismic vessels, presumably commercial, working off the coast of Nova Scotia during summer, and off western Africa and northeast Brazil in spring, summer, and fall. During summer 1999, research airguns were recorded on the MAR near 26° N 50° W. In the eastern tropical Pacific, the predominant source of airgun sounds was seismic vessels in the nearshore waters of southern Ecuador and northern Peru. All of the areas in which intense airgun activity was detected include important habitat for marine mammals, including that of the critically endangered northern right whale. Sounds from airguns appear to be a major contributor to the sound field in the Atlantic and parts of the Pacific Ocean, and may be of concern given the recent interest in ocean noise and its effects on marine mammals.